Hepatology

Give a short account on :

1. Causes , clinical picture & complications of liver cirrhosis .
2. Causes , complications , treatment of portal hypertension.
3. Management of bleeding esophageal varices.
4. Diagnosis & management of hematemesis.
5. Hepatic encephalopathy.
6. Causes , clinical picture & treatment of acute hepatic failure .
7. DD of recurrent jaundice.
8. How to reach diagnosis of a case of jaundice.
9. Sequelea of acute hepatitis.
10. Clinical picture , investigation , treatment of chronic viral C hepatitis.
11. Amebic liver abscess.

Enumerate :

1. Pathogenesis of ascites in hepatic patient.
2. Precipitating factors of hepatic encephalopathy.
3. Causes of hematemesis.
4. **Diagnosis of HCV :**
    - Anti-HCV IgM, IgG (by ELISA, enzyme-linked immunosorbant assay) : +ve after 6 wks of infection
    - HCV RNA (PCR, polymerase chain reaction) : +ve within 2 wks, marker of active infection.
    - Anti-HCV (by RIBA, recombinant immunoblot assay) : to confirm +ve anti-HCV ELISA in patients with undetectable HCV RNA.
    - HCV genotype: predict response to therapy (genotype2,3 better than 1,4)
    - Liver enzymes, Seum albumin, PT : to assess the chronic liver disease.
    - Imaging : US should be ordered to assess the presence or absence of cirrhosis, portal vein diameter & size of spleen.
    - Liver biopsy : to detect the chronic hepatitis activity & degree of fibrosis.

5. **Indications, Contraindications & monitoring for interferon therapy in chronic Hep C**

Indications :

- HCV RNA : +ve
- Biopsy with chronic hepatitis.
- Compensated liver disease.
- For genotype 2,3 : High response rate, here, biopsy is not necessary.

Contraindications :

- **Decompensated cirrhosis**.
- Pregnancy.
- Psychic disorder.
- Severe cardiac or pulmonary disease.
- Uncontrolled DM.
- Seizure.
- Autoimmune disease.
- Renal failure is absolutely contraindicated for ribavirin.

Monitoring :

- PCR : If no response after 3 months : stop the drug
- CBC : Stop the drug if WBCs < 3000 or platelets < 100000 /cmm
- The patient must be monitored carefully for side effects including flu-like symptoms, depression, BM depression, …

6. **Causes of NAFLD.**
7. **Extrahepatic complications of viral hepatitis.**
8. Pitfalls in treatment of ascites in hepatic patients.
9. Causes of obstructive jaundice.
10. Differentiate clinically between intra & extra hepatic cholestasis

Liver commentaries

The first case

The case start with either Bilharziasis (farmer) or hepatitis (blood transfusion)

⇩

Liver cirrhosis *why* ? ☞ LCF manifestations (Jaundice , ascites , ...)

☞ Portal hypertensions (Esoph. varices)

⇩

Complicated by : one of the following 5

Hepatoma	SBP	Hypersplenism	Encephalopathy	B.corpulmonale
- Rapid unexplained deterioration. - Resistant ascites. - Paramalignant syndrome.	- Aspiration of ascetic fluid : WBCs > 250/cm2 - Improved by antibiotics. - Resistant ascites. - Abdominal tenderness & fever.	-↓ WBCs,RBCs, platelets - Notice that portal hypertension is an important cause of hypersplenism.	- Precoma manifestations (2 SAD) - Coma.	- History of B. - pulmonary HTN. - RSHF

So,.. the final diagnosis is liver cirrhosis **complicated by** one of the 5's above.

The second case

Ameobic hepatitis :

A case of fever , right upper quadrant pain & tenderness , moderate hepatomegaly with or without jaundice , ↓ air entry on base of right lung (e.g. pleural effusion) . Also leucocytosis , ↑↑ alkaline phosphatase.

The third case

Wilson disease :

The family history, clinical examination & laboratory tests show the presence of acute liver failure, plus neurological manifestations e.g. abnormal movement. All point to the diagnosis of Wilson's disease.

The fourth case

Acute hepatitis

Jaundice, right upper quadrant pain, fatigue and markedly elevated ALT & AST make the diagnosis of acute hepatitis.

Liver doses

1- Chronic hepatitis :

- **Interferon :** in ttt of chronic active viral hepatitis : P 42

  - **Alpha-interferon :**
    - **HBV** : 5 million units SC 3 times/week for at least 3 months.
    - **HCV** : 3 million units SC 3 times/week for at least 6 months.
  - **Pegylated Interferon** (*Peg interon*) : Long acting Interferon

    180 μg SC , once/week for at least 6 months.

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- Dose of cortisone in ttt of autoimmune hepatitis :

- 1st week : 30 mg/d then maintenance dose :15 mg/d for 6 months – 3 years
- If full remission : withdraw the drug slowly.
- If no remission : continue maintenance & azathioprine 50 – 100 mg/d may be added.

2- ttt of ascites in hepatic patients : don't forget the dose of :

- Spironolactone : in full dose 100 – 400 mg/day
- Lasix : 40-120 mg/d

3- Vasopressin in ttt of acute attack of esophageal varices :

20 unit in 200 ml glucose 5% over 20 minutes.

Rule of 6 in Hepatology ☺

- Pathogenesis (Etiology) of Ascites in hepatic patient …… 6 items.
- Treatment of Ascites in hepatic patient. …….. 6 items
- Precipitating factors of hepatic encephalopathy…….. 6 items.
- c/p of hepatic encephalopathy (pre coma)…….. 6 items.
- Treatment of hepatic encephalopathy…….. 6 items.
- c/p of portal hypertension …….. 6 items
- Complications of portal hypertension…….. 6 items.
- Investigations of portal hypertension…….. 6 items.
- Treatment of portal hypertension (esophageal varices)…… 6 items.
- Prevention of esophageal varices…… 6 items.
- Complications of hepatitis …….. 6 items.
- Investigations of hepatitis…….. 6 items.
- Treatment of acute hepatitis …….. 6 items.
- Investigations of amebic dysentery. ……..6 items
- Indications of liver transplantation …….. 6 items.
- Causes of hepatomegally …….. 6 items.

All that you need in hepatology is just to remember & enumerate these items (6 x 16 = 96 items), Try to recall these 96 items <u>every night</u>. ☺

Cases

1- A 42 year old man presented because of increasing abdominal girth over the previous 2 weeks. His weight had increased only 3 pounds . He denied recent fever , chills, nausea , vomiting , melena , hematemesis or abdominal pain ,but did have a previous episode of esophageal variceal bleeding treated with sclerotherapy.

Physical examination : Temp. 37C , pulse : 84b/m , Respiratory rate : 20/m , BP : 110/70 mmHg .

General : chronically ill appearing , Eyes : sclera icterus , skin : spider angiomata . Abdomen : distension , venous redistribution pattern on the abdominal wall, tense ascites , bowel sounds present . Liver not palpable and splenic tip palpable . Edema lower limbs.

Lab finding : WBC 11.400/cmm , with 87% PMNs , Het 31% , platelets 85000/cmm, PT 11.5 seconds , Na 137mEq/L , K 5.2mEq/L , HCO_3 : 27 mEq/L , AST : 72 , ALT : 58 IU/L , Alkaline phosphatase : 18 KAU , Total serum bilirubin : 2.8 mg/dl , Paracentesis : ascites fluid is cloudy with WBC 1050/cmm , with 56% PMNs , ascites fluid protein 3 gm/dl . serum albumin 2.5 gm/dl . Medication including spirnolacton , frusemide , but a good response after addition of antibiotic.

a) **What is the professional diagnosis ?**
b) **Mention causes of hematemesis ?**
c) **What are causes of portal hypertension ?**
d) **What are the pathogenesis of the ascites in hepatic patient ?**
e) **In this patient, What is the most probable cause of ascites ?**
f) **What is the most suitable antibiotic used in treatment ?**

2- A 35 year old farmer , while working in the field , felt dizziness , fainting , extreme fatigability , nausea ,sweating and collapse . He was transferred to hospital where he passed black motion . On examination there was marked pallor , pulse 110/minute , BP : 90/60 mmHg . Abdominal examination revealed moderate enlargement of spleen . He was managed and discharged well in few days.

a) **Mention 5 data from the history that could help in reaching the diagnosis ?**
b) **Mention 5 added signs to clarify the diagnosis ?**
c) **What is the most probable diagnosis ?**
d) **Mention investigations that could be of help in assessing the case ?**
e) **How could you treat such case ?**

3- A 60 year old man presents with history of fever of six weeks duration. The patient believes that fever began follower a relatively minor injury to his right upper abdominal quadrant . He has noted daily fever & right upper quadrant pain since that time . Because of the that fever he is admitted to the hospital . Physical examination reveals a febrile man with tenderness to deep palpation over the anterior superior aspect of the right upper abdominal quadrant. There is edema of skin and tenderness over the right lower intercostals spaces with dullness . Total WBC 23000 /cmm with 11% lymphocytes , 3% monocytes and 86% polymorph leukocytes . The alkaline phosphatase is 141 IU (upper limit of normal 92 IU) . The serum albumin level is low , other routine laboratory work is unremarkable. After diagnosis the patient received specific medical treatment with remarkable improvement.

a) **What are the most common causes of prolonged obscure fever ?**
b) **Mention the most probable diagnosis supported by history , clinical examination mentioned .**
c) **What are the points missed in history or clinical examination helping you to reach the diagnosis ?**
d) **What are the investigations needed other than mentioned ?**
e) **What is the possible specific medical treatment that improve the case ?**

4- A patient with cirrhotic liver and ascites came to your office complaining of disturbed sleep rhythm, personality changes and coarse tremors.

a) **What is the condition this patient has ?**
b) **What are the precipitating factors of the condition ?**
c) **How to manage this case ?**

5- HCV antibody positive patient is concerned that he may transmit the virus to his wife or children. They are tested and are to be negative for HCV antibody. He is relieved but asks for advice to prevent infecting them.

a) **What do you advice him ?**
b) **Enumerate extra-hepatic manifestations of hepatitis C ?**

6- A 32 year old male went for a pre-employment assessment. He had past history of blood transfusion once 10 years ago after a car accident. Examination revealed no clinically detectable abnormalities. Investigations ALT 120 U/L, AST 80 U/L , total bilirubin 1 mg/dL, Anti-HCV- Ab positive.

a) **What further investigations would you recommend ? And why ?**
b) **What are the drugs used in treatment of this condition ? What is the duration of treatment ?**
c) **What are the contraindications of treatment ?**

7- A 17 year old male presented to the outpatient clinic with fever, anorexia, and vomiting. The condition started 4 days before, and was associated with right hypochondrial pain that was not related to meals. There was no change in bowel habits. He noticed tea colored urine for the last day . There were no previous medical illness or drug intake.

Examination revealed temp 38 C, pulse 120/m, normal BP. He was jaundiced. Abdominal examination revealed tenderness over the right hypochondrium, hepatomegaly 5 cm below the costal margin. There was no Splenomegaly or ascites.

Investigations : Serum ALT 2650 U/L, AST 2320 U/L, total bilirubin 5 mg/dL, indirect bilirubin 2.2 mg/dL.

a) **What would be the possible diagnosis ? And Why ?**
b) **What further tests would you recommend to confirm the diagnosis ?**
c) **What is the treatment ?**

8- A 49 year old female presents to the ER complaining of a 4 weeks history of progressive abdominal swelling and discomfort. She has no other GI symptoms, she has a normal appetite and normal bowel habits. Her medical history is significant only for 3 pregnancies, one of which was complicated by excessive blood loss, requiring a blood transfusion. She is married for 20 years.

On examination : temp 37 C, pulse 88/m, & Bp 95/60 mmHg. She is thin, she is jaundiced. Chest and heart are clinically free. Her abdomen is distended, with mild diffuse tenderness, hypoactive bowel sounds and shifting dullness to percussion. Mild peripheral edema.

Investigations : normal except for : Na 129 m Eq/L, serum albumin 2.8 mg/dL, total bilirubin 4 mg/dL, Hb 12 g/dL with MCV 102 fL and platelets 78 x 10^9/L.

a) **What is the most likely diagnosis ?**
b) **Explain lab finding in this patient.**
c) **What are your next steps ?**

9- A 40 year old female complaining of 2 months history of progressive abdominal distension with no change in appetite or in bowel habits and no other GIT manifestations.

On examination : She was icteric. Temp 38 C with no lower limb edema. Chest & heart examination revealed no abnormality, her abdomen was distended with diffuse tenderness and shifting dullness.

Investigations : Hb 11g/dL, total leucocytic count 15 x 10^9/L , platelets 78 x 10^9/L, albumin 2.8 g/dL, total bilirubin 4 mg/dL, direct bilirubin 2 mg/dL , PT 15 seconds.

a) **What is the most likely diagnosis ?**
b) **What further investigations should be done ?**
c) **What is the cause of shifting dullness and fever ?**

10- A 14 year old boy presented with yellowish discoloration of the sclera, he gave a history of tiredness and fatigue for the previous few weeks. His mother gave a family history of similar presentation few years ago in his older sister and she died few weeks later.

On examination : The boy was conscious & afebrile but jaundiced. Pulse 100/m, BP 110/70. Chest and heart were clinically free. Abdominal examination showed shifting dullness. Bilateral mild lower limb edema was present. There were abnormal movements involving both upper limbs.

Investigations : total bilirubin 3.5 mg/dL, direct bilirubin 2.8 mg/dL, albumin 3 g/dL, AST 556 U/L, ALT 678 U/L, INR 2.5

a) **What is the most likely diagnosis ?**
b) **What further investigations should be done ?**
c) **What is the treatment of this condition ?**

Answers

Case No 1 :

a) What is the professional diagnosis ?

Liver cirrhosis complicated by Spontaneous Bacterial Peritonitis (SBP).

- Cirrhotic patients with ascites and evidence of any clinical deterioration should undergo diagnostic paracentesis to exclude SBP.
- SBP occurs in 10% of cirrhotic patient due to loss of detoxification function of the liver.
- Diagnosis :

The key to the diagnosis of SBP is examination of the ascetic fluid :

Neutrophils count > 250 cells / mm3.

b) Mention causes of hematemesis ?

See GIT book P 39

c) What are causes of portal hypertension ?

See GIT book P 32

d) What are the pathogenesis of the ascites in hepatic patient ?

See GIT book P 22

e) In this patient, What is the most probable cause of ascites ?

Spontaneous bacterial peritonitis

f) What is the most suitable antibiotic used in treatment ?

Cefotaxime: 2 gm t.d.s…IV or Ciprofloxacin 400 mg/12h for 5 - 10 days.

Case No 2 :

a) Mention 5 data from the history that could help in reaching the diagnosis ?

1- Farmer.

2- Splenomegaly.

3- Melena (black motion)

4- ↑ pulse.

5- History of drug intake , bleeding from other orifices , Dyspepsia.

b) Mention 5 added signs to clarify the diagnosis ?

1- Signs of portal hypertension : Splenomegaly, Caput medusa.

2- Signs of ascites : see GIT book P 70

3- Liver cirrhosis.

4- Spider naevi , palmer erythema , pallor , jaundice.

5- PR : to exclude hemorrhoids , fissure.

6- Signs of RV enlargement.

c) What is the most probable diagnosis ?

Complicated portal hypertension (Rupture esophageal varices)

DD :

- Causes of upper GIT bleeding : ……
- B polyposis.
- B corpulmonale : syncope

d) Mention investigations that could be of help in assessing the case ?

Investigations of esophageal varices : P 35 (6 items)

e) How could you treat such case ?

Treatment of portal hypertension : p 36

Case No 3 :

a) What are the most common causes of prolonged obscure fever ?

1- Infections : 30%

- Bacterial : TB , IE , Typhoid ,Brucellosis ,Lung abscess , Pyelonephritis
- Viral : EBV , CMV , HIV , Hepatitis …
- Protozoa : Amebiasis , malaria.

2- Malignancy (20%) : Lymphoma , leukemia , hepatoma , ….

3- Collagen diseases (10%) : SLE , RA , PAN , …

4- Others (20%) : Sarcoidosis , pulmonary embolism , Cerebral hemorrhage , Atropine , …

5- Undiagnosed (20 %) : most will resolve spontaneously.

b) Mention the most probable diagnosis supported by history , clinical examination mentioned .

The most probable diagnosis : Amebic liver abscess. (why ?) , DD : …

c) What are the points missed in history or clinical examination helping you to reach the diagnosis ?

Points missed in history :

1- Type of fever : remittent

2- Presence of rigor.

3- Chest symptoms : cough , dyspnea.

4- History of amebic dysentery.

5- Nausea , vomiting.

Points missed in clinical examination :

1- Complexion : earthy facies due to toxemia.

2- Jaundice : usually mild.

3- Enlarged tender liver.

4- Right basal lung signs : e.g. pleural rub , signs of lung abscess.

d) What are the investigations needed other than mentioned ?

See GIT book P 66 (*notice that Liver function tests & Leucocytosis are mentioned in the case*)

Case No 4 : Hepatic encephalopathy.

Case No 5 :

a)

- HCV is spread by parenteral contact with infected blood. In contrast to hepatitis B , sexual transmission of HCV is inefficient thus, it is NOT recommened that couples in long term relationship alter their sexual practices (e.g. use of condoms, etc ..)
- Hepatitis C is NOT spread by hugging, sneezing or sharing a drinking glass.
- Household members of persons infected with HCV should not share items that might be contaminated with small amount of blood , such as nail clippers .....

b) Extra hepatic manifestations of hepatitis

- Immune complex disease is relatively common in HCV patients.
- Membranopoliferative GN.
- Mixed cryoglobulinemia.
- Thyroiditis.
- Arthritis.
- Skin : porphyria cutanea tarda, Lichen planus.

Case No 6 :

a) The investigations :

I. Lab :

- Serum albumin, PT, CBC to assess the presence of liver cirrhosis.
- PCR : Hepatitis C virus RNA to confirm the diagnosis. Anti HCV Ab by ELIZA is used only for screening.

II. Imaging :

- Abdominal US : to assess the presence or absence of cirrhosis, portal HTN, Size of spleen.

III. Liver biopsy is indicated to detect the chronic hepatitis activity and degree of fibrosis.

b)

- Combined ttt with pegylated interferon & ribavirin is used in the ttt of chronic HCV
- Dose , Precautions : see book
- Duration of ttt : for 12 months. Treatment should continue for longer period especially in a case of HCV genotype 4 (genotype in Egypt).

c)

- Decompensated cirrhosis is considered a contraindication.
- Renal failure is an absolutely contraindication for ribavirin.

Case No 7 :

a) The diagnosis is an acute hepatitis (most probably Hep A)

- Jaundice, right upper quadrant pain, fatigue and markedly elevated ALT & AST make the diagnosis of acute hepatitis.
- The age, the absence of drug history plus the typical symptoms and signs make the diagnosis of hepatitis A most appropriate.

b) Anti HAV Ab (IgM) should be recommended to confirm the diagnosis.

c) Treatment is conservative (bed rest & symptomatic ttt). The condition is benign, resolves gradually and NOT complicated by chronicity.

Case No 8 :

a) The most likely diagnosis : ascites caused by portal hypertension as a complications of liver cirrhosis.

b) Lab finding :

- Low albumin : refer to chronicity of liver pathology (liver cirrhosis)
- Increased bilirubin : indicates decompensated liver that clinically leads to jaundice.
- Hyponatremia : may be due to use of diuretics.
- Thrombocytopenia : mostly due to hypersplenism.

c) Next steps :

- Abdominal US to confirm the diagnosis.
- Paracentesis to evaluate the ascetic fluid to determine the likely etiology & to evaluate for the complication of SBP.
- Markers for viral hepatitis HBV, HCV should also be done.

Case No 9 :

a) The most likely diagnosis is ascites secondary to liver cirrhosis complicated by spontaneous bacterial peritonitis. : due to fever, abdominal tenderness and leucocytosis.

b) The next diagnostic steps :

- Abdominal US to confirm the diagnosis.
- Paracentesis to evaluate the ascetic fluid (neutrophils count > 250 cells/ mm^3 in a case of SBP)

c) Causes of shifting dullness is the presence of ascites. Fever is mostly due to complicating SBP, concomitant infection elsewhere and HCC.

Case No 10 :

a) The most likely diagnosis is **Wilson's disease**. The family history, clinical examination & laboratory tests show the presence of acute liver failure , plus abnormal movement. All point to the diagnosis of Wilson's disease.

b) Further investigations :

- Serum ceruloplasmin (should be low) and urinary Cu excretion (should be elevated).
- Slit lamp examination of the cornea for the presence of Kayser Fleischer ring.
- Brain MRI.
- Liver biopsy.

c) Treatment :

- Cu chelation : D penicillamine.
- Supportive measures for acute liver failure.
- Liver transplantation.

MCQ

1- Which of the following laboratory tests is most characteristic of a patient with jaundice secondary to alcoholic hepatitis ?

a) Ratio of AST:ALT is 3:1 and the AST is 500 U/L
b) Ratio of AST:ALT is 2:1 and the AST is 250 U/L
c) Ratio of AST:ALT is 1:1 and the AST is 250 U/L
d) Ratio of AST:ALT is 1:3 and the AST is 750 U/L

1- b, In alcoholic hepatitis, the AST:ALT ratio is usually 2:1 and the level of AST is usually < 300. When viral hepatitis or toxin induced hepatitis causes jaundice, the AST:ALT ratio is usually 1:1 and usually > 500

2- Which of the following medications causes predictable, dose dependant hepatocellular injury?

a) Morphine
b) INH
c) Gold
d) Acetaminophen

2- d, Its daily dose shouldn't exceed 4g/d, over 15g/d will result in liver injury, >25 → fatal fulminant hepatic failure.

3- Which of the following is the most likely mechanism of paracetamol hepatotoxicity?

a) An allergic mechanism.
b) An active metabolite
c) Circulating immune mechanism
d) A reaction with hepatic glycogen stores.

3- b, An active metabolite is hepatotoxic, It is detoxified by glutathione, & when glutathione stores are depleted, severe liver damage can occur.

4- Which of the following is the most appropriate in a case of acetaminophen toxicity?

a) Ethanol
b) Narcan.
c) Cortisone
d) N-acetylcysteine.

4- d, It acts by binding of toxic metabolite, Narcan is effective for narcotic overdose, ethanol for methanol toxicity.

5- As regard to primary biliary cirrhosis, which of the following is most curative?

a) Ursodiol (ursodeoxycholic acid)
b) Methotrexate.
c) Azathioprine.
d) Liver transplantation.

5- d

6- Which of the following is the most appropriate step to diagnose primary biliary cirrhosis?

a) INR
b) ANA
c) Antimitochondrial antibodies
d) Ct abdomen

6- c

7- Which of the following is the most likely explanation for why early jaundice is visible in the eyes but not the skin?

a) The high type II collagen content of the sclera tissue.
b) The high elastin content of sclera tissue.
c) Secretion via the lacrimal gland.
d) The high blood flow to the head with consequent increased bilirubin delivery ☺

7- b, The sclera are high in elastin, which has an affinity for bilirubin.

8- As a consequence of severe liver damage, hepatic amino acid handling is deranged. In this situation, plasma levels of which of the following are likely to be lower than normal?

a) Ammonia (NH_3)
b) Ammonium (NH_4)
c) Urea.
d) Glycine.

8- c, Amino acids , except for the branched - chain amino acids leucine , isoleucine and valine , are taken up by the liver via the portal circulation and are metabolized to urea.

9- Which of the following conditions are known to predispose to the formation of cholesterol gallstone ?

a) Hypertriglyceridemia.
b) Hypercholesterolemia.
c) Auto immune hemolytic anemia.
d) Surgical resection of the ileum.

9- d, Obesity , clofibrate therapy , age and oral contraceptive therapy predispose to gallstone formation by increasing biliary cholesterol excretion. Extensive ileal resection leads to malabsorption of bile salts, and an inability to micellize cholesterol. No correlation exists between serum cholesterol concentration and biliary cholesterol secretion. Other important predisposing factors to the formation of cholesterol gallstones include gallbladder hypomotility resulting from prolonged parenteral nutrition, fasting or pregnancy. Pigment gallstones may occur when the bilirubin level is high , such as in hemolytic anemia.

10- A patient with sclera icterus and a positive reaction for bilirubin by urine dipstick testing could have which of the following disorders?

a) Autoimmune hemolytic anemia.
b) Dubin Johnson syndrome.
c) Crigler-Najjar type II disorder.
d) Gilbert's syndrome.

10- b, - Under normal conditions or even in cases of unconjugated hyperbilirubinemia (e.g. hemolysis, Gilbert's & Crigler-Najjar types I and II) : the urine contains no bilirubin. This is because the unconjugated bilirubin , is tightly bound to albumin and is not filtered by the glomeruli.
- In cases of conjugated hyperbilirubinemia (e.g. Dubin Johnson , Rotor syndrome) : the urine dipstick becomes positive for biluribin.

11- SAAG is > 1.1 g/dl in all except

a) Tuberculous peritonitis
b) Congestive heart failure
c) Liver cirrhosis
d) Budd-Chiari syndrome

11- a

12- Which of the following statements regarding delta hepatitis virus (HDV) is correct?

a) HDV is a defective DNA virus .
b) HDV can infect only persons infected with hepatitis B virus (HBV)
c) HDV infection has been found only in limited areas of the world.
d) Stimultaneous infection with HDV & HBV results in an increased risk of the development of chronic hepatitis.

12- b, HDV is a defective virus that coinfects with and requires the helper function of HBV for its replication and expression. In general, patients with simultaneous HBV & HDV infections do not have an increased risk of developing chronic hepatitis compared with patients with acute HBV infection alone. HDV superinfection of patients with chronic HBV infection carries an increased risk of fulminant hepatitis and death.

13- 10- A 66 year-old man presents with fatigue and tea colored urine Physical examination reveals icteric sclera but is otherwise unremarkable. Which of the following conditions is LEAST likely to account for these findings?

a) Pancreatic cancer.
b) Primary biliary cirrhosis.
c) Auto immune hemolytic anemia.
d) Viral hepatitis.

13- c, Bilirubin , a breakdown product of heme derived from red blood cells, is transported to the liver in an unconjugated state, which is not renally excreted.

14- Typical causes of extra hepatic cholestatic jaundice include:

a) primary biliary cirrhosis.
b) cystic fibrosis.
c) Alcoholic cirrhosis.
d) non-alcoholic steatohepatitis.

14- b,

- Primary biliary cirrhosis , alcoholic cirrhosis : Intrahepatic obstruction.
-Cystic fibrosis → Common bile duct obstruction from chronic pancreatitis.
-Non-alcoholic steatohepatitis : Rarely causes jaundice.

15- A 56 year- old patient with cirrhosis of the liver presents with massive hemetemesis. Somatostatin, fluids and blood products are administered and the patient is intubated. Emergency endoscopy reveals bleeding esophageal varices. The patient becomes stable hemodynamically but is still bleeding. The most appropriate next step is :

a) intravenous propranolol.
b) intravenous vasopressin.
c) endoscopic injection sclerotherapy.
d) endoscopic variceal band ligation.

15- d, Once bleeding develops , the first considerations are hemodynamic stabilization and airway protection. Emergency endoscopy is required to define the nature and site of bleeding. Medical therapy with vasopressin , nitroglycerine, somatostatin or octreotide can be used to slow the bleeding while waiting endoscopy. Although endoscopic injection sclerotherapy controls the active hemorrhage in 90%, recent studies have suggested that EVL may be superior due to equal control rates with less rebleeding & fewer complications.

16- All of the following are associated with obstructive jaundice except

a) Oral contraceptive pills
b) Pregnancy
c) Criggler-Najjar type II
d) Secondary carcinoma of the liver

16- c

17- Which organ doesn't move with respiration

a) Pancreas
b) Liver
c) Transverse colon
d) Kidney

17-a

18- The following are risk factors for hepatocellular carcinoma except

a) Hepatic hemangioma.
b) Chronic hepatitis C
c) Hemochromatosis
d) Aflatoxin

18-a, Hemangioma is the most common benign tumor affecting the liver.

19- What do you recommend for a surgeon punctured by a needle during cholecystectomy for a patient with hepatitis C

a) Reassurance.
b) Active immunization
c) Passive immunization
d) Interferon therapy
e) Follow up of liver enzymes.

19- e, There is no effective prophylaxis for HCV following exposure to infected blood. Both Ig therapy & interferon are ineffective in preventing HCV infection. There is currently no vaccine for HCV. Serial determination of anti-HCV antibodies is recommended for 6 months.

- Post exposure management for Hep B :
  - Vaccinated : no need for treatment
  - Not vaccinated : IM injection of HBIG & start HBV vaccination.
- Post exposure risk following needlestick injuries : A C B ☺
  - AIDS : 3 in 1000 (0.3%)
  - Hep C : 3 in 100 (3%)
  - Hep B : 3 in 10 (30%)

20- The following statements are true of ascites EXCEPT :

a) A high protein content in ascites is usual in alcoholic liver disease.
b) Ascites resistant to diuretics is characteristic of hepatic vein thrombosis.
c) Ascites is sometimes associated with a pleural effusion.
d) Ascites is a risk factor for bacterial peritonitis.

20- a

21- Which of the following is NOT dependent on bile salts for its absorption?

a) Vitamin A.
b) Vitamin B.
c) Vitamin K.
d) Vitamin D.

21- b

22- Which of the following drugs causes cholestatic jaundice:

a) Rifampicin.
b) Isoniazid.
c) Erythromycin.
d) Halothane.
e) Paracetamol.

22- c

23- Typical features 6-8 hours after paracetamol poisoning include :

a) Coma and ophthalmoplegia
b) Prolongation of the prothrombin time
c) Metabolic acidosis and hypoglycaemia
d) Nausea, vomiting & abdominal pain.

23- d, Explanation :

- Coma and ophthalmoplegia : Late features suggesting hepatic encephalopathy (after 3-5 days)
- Prolongation of the prothrombin time : Rare before 24 hours
- Metabolic acidosis and hypoglycaemia : Consequence of hepatic necrosis (after 36 hours)

24- The concentration of conjugated bilirubin in the

a) serum in hemolytic anemia is typically increased.
b) urine of healthy subjects is typically undetectable.
c) serum normally constitutes most of the total serum bilirubin.
d) serum in Gilbert's syndrome is typically increased

24- b, As almost all bilirubin is unconjugated and albumin-bound.

25- Characteristic features of Gilbert's syndrome include EXCEPT

a) An autosomal recessive mode of inheritance
b) Decreased hepatic glucuronyl transferase activity
c) Serum bilirubin concentration increased by fasting
d) Unconjugated hyperbilirubinemia is the sole abnormality.

25- a, Typically autosomal dominant.

26- The following features suggest extrahepatic cholestasis rather than viral hepatitis EXCEPT :

a) A palpable gallbladder.
b) Right hypochondrial tenderness
c) Serum alkaline phosphatase concentration > 2.5 times normal
d) Pruritus and rigors
e) peripheral blood polymorph leucocytosis.

26- b, Also common in acute hepatitis.

27- As regard to hepatitis C, which is correct?

a) A chronic carriage rate of < 50% is the rule
b) The disease does not progress to hepatoma
c) Most patients experience the symptoms of acute hepatitis
d) The virus is responsible for 90% of all post-transfusion hepatitis

27- d

28- Typical liver function values in acute hepatic failure include :

a) Hypoalbuminemia
b) Hypoglycemia
c) Serum alkaline phosphatase > 6 times normal
d) Peripheral blood lymphocytosis

28- b, Impaired hepatic gluconeogenesis.

29- The typical features of hepatic cirrhosis include EXCEPT :

a) A small shrunken liver
b) Painful Splenomegaly.
c) Peripheral blood macrocytosis.
d) Central cyanosis

29- b, Painless Splenomegaly. Central cyanosis : Hepatopulmonary syndrome associated with pulmonary telangiectasia

30- Prevention of recurrent variceal bleeding is achievable using EXCEPT

a) somatostatin (octreotide) therapy
b) TIPSS
c) Variceal banding
d) Sclerotherapy

30- a, Somatostatin may be useful in acute bleeds.

31- In primary biliary cirrhosis :

a) Middle-aged males are affected predominantly
b) Pruritus is invariably accompanied by jaundice
c) Osteomalacia and osteoporosis both occur as the disease progresses
d) Smooth muscle antibodies are present in high titres in the serum.

31- c, Vitamin D malabsorption and hepatic osteodystrophy

32- The typical features of primary haemochromatosis include EXCEPT

a) Inherited as an autosomal recessive gene located on chromosome 6
b) Male predominance
c) Hepatic cirrhosis and diabetes mellitus
d) Grey skin pigmentation due to ferritin deposition.

32- d, Melanin not iron deposition